British Birds

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(with eight plates)

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Three Shillings

February 1961

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AN ILLUSTRATED MONTHLY JOURNAL

Edited by

P. A. D. Hollom E. M. Nicholson
I. J. Ferguson-Lees Stanley Cramp

Photographic Editor: Eric Hosking

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Editorial Address: 30 St. Leonard's Avenue, Bedford

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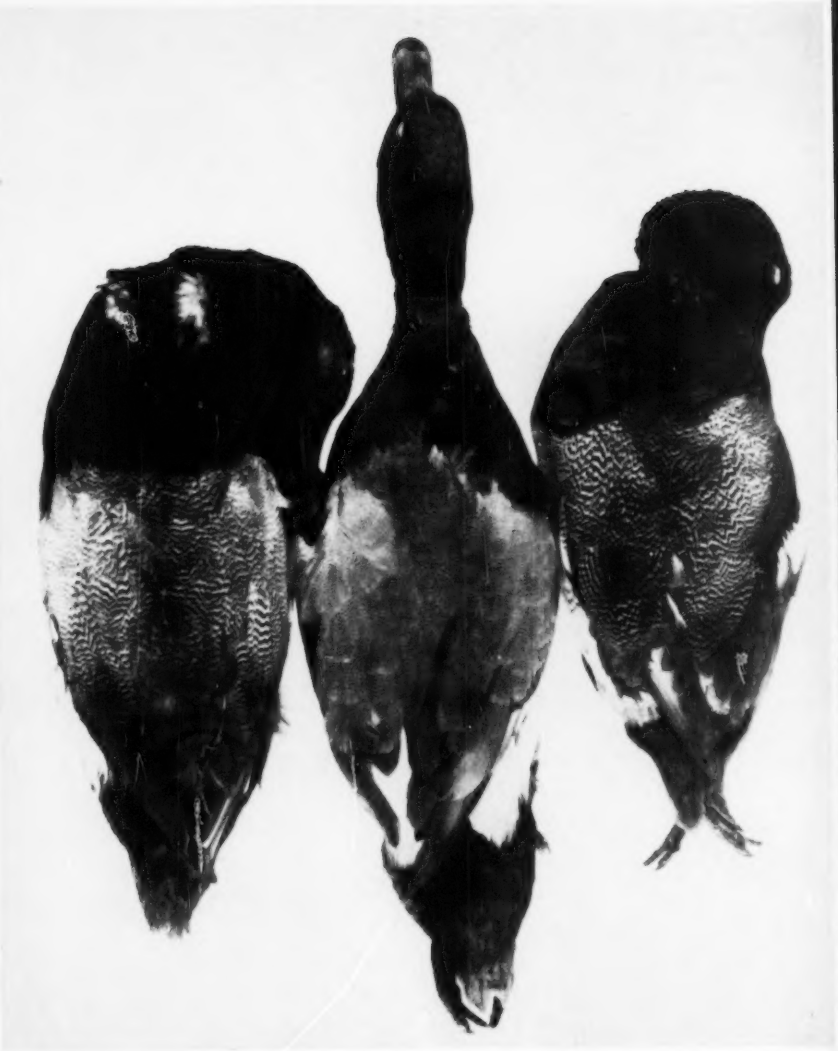

PLATE 9. Dorsal view of hybrid Tufted Duck × Pochard (*Aythya fuligula* × *ferina*) shot Sutton Courtenay, Berkshire, March 1960 (*centre*), in comparison with Lesser Scaup (*A. affinis*) (*right*) and Scaup (*A. marila*), all drakes (pages 49-54). The hybrid's mantle is whitish finely vermiculated with dark grey and more uniform than the coarsely marked mantles of the two scaups. Its head is coppery brown with some purple gloss, while the Lesser Scaup's is black with a purple or green gloss and no brown. Note the broad black tip to the bill (*photo: Christopher Perrins*)

British Birds

Vol. 54 No. 2

FEBRUARY 1961

The "Lesser Scaup" problem

By Christopher Perrins

(Plate 9)

DURING THE PAST FOUR WINTERS there have been a number of observations in Britain of ducks that were thought to be Lesser Scaups (*Aythya affinis*), a North American species not recorded in Europe. This note is based on a detailed examination of one of these —that first seen at Sutton Courtenay, Berkshire, in December 1957 and subsequently watched by a very large number of observers. This bird was present for three to four months in each of the winters 1957-58, 1958-59 and 1959-60, disappearing at the end of March in the first two. During this time there was little change in its plumage and it is safe to assume that by March 1960 it was in full adult dress. It was clearly a drake.

Soon after it had been identified as a Lesser Scaup, two Americans, Drs. R. A. MacArthur and F. A. Pitelka, saw the bird and thought that it was not a Lesser Scaup. They gave head shape and large size as the reasons for their decision. British ornithologists became divided on the matter, many still believing that it was a Lesser Scaup, but some considering it to be probably a hybrid. As opinions differed so widely, it was eventually decided to obtain a permit to collect it. It was shot on 3rd March 1960, under a licence issued to Dr. I. C. T. Nisbet by the Nature Conservancy.

Comparison with live specimens at Slimbridge and with museum material at Oxford then confirmed the belief that it was not a Lesser Scaup, for the following reasons:

(a) **Size.** In the field it had appeared a little longer than Tufted Ducks (*A. fuligula*) it accompanied and considerably "broader in the beam" when seen end-on. If the Slimbridge specimens of Lesser Scaup are

representative, this species truly qualifies for the name "Lesser", as these birds are distinctly smaller than the Ring-necked Ducks (*A. collaris*) which are on the same pool and which are comparable with Tufted Ducks in size. The following wing-measurements (from Delacour 1959) are of drakes of some of the *Aythya* species, compared with that of the Sutton Courtenay specimen (while these give an idea of the order of size, they do not necessarily reflect the body shape of the bird or give an accurate estimate of bulk):

Lesser Scaup (*A. affinis*)	190-201 mm.
Ring-necked Duck (*A. collaris*)	195-206 mm.
Tufted Duck (*A. fuligula*)	198-208 mm.
Sutton Courtenay bird	213 mm.
Pochard (*A. ferina*)	211-220 mm.
Common Scaup (*A. marila*)	220-230 mm.

(b) **Shape of head.** The forehead rises fairly steeply and the highest point of the head is almost immediately above the eye, whereas in the Lesser Scaup the forehead rises more steeply, the head is more domed and the highest point is behind the eye. There is a "kink" in the nape, rather similar to that in the Ring-necked Duck, but further down the back of the head than in the Lesser Scaup. This "kink" is at the termination of a small crest of feathers which hug the contours of the head so closely that I only once saw it blown aside in the field.

(c) **Colour of head.** In the field the head showed black with a strong brownish-purple gloss; in the hand it can be seen that the feathers are a deep coppery brown and in some lights have a purple gloss. The head of the Lesser Scaup is black with a purple or sometimes a greenish gloss, but there is no brown coloration in the feathers.

(d) **Mantle.** In the field the mantle appeared a drab, uniform grey; at close quarters or in the hand it is possible to see that this is caused by a fine, dark grey vermiculation on a pale, whitish ground (plate 9). Both Scaups have a much more heavily patterned, far less uniform back on which the barring is visible at some distance in the field. (For later reference it is necessary to note that the black back of the Tufted Duck shows a fine peppery vermiculation.)

(e) **Bill.** In life and when the bird was freshly dead, the bill was bluish with a broad black tip and base (Fig. 1c). It is almost parallel-sided, the breadth at the tip and base being, respectively, 21 and 20.5 mm. Both scaups have markedly spatulate bills with black only on the nail (Figs. 1a and 1b).

(f) **Wing-bar.** The white wing-bar extends from the secondaries along the primaries where it is less pure in colour. Though obvious

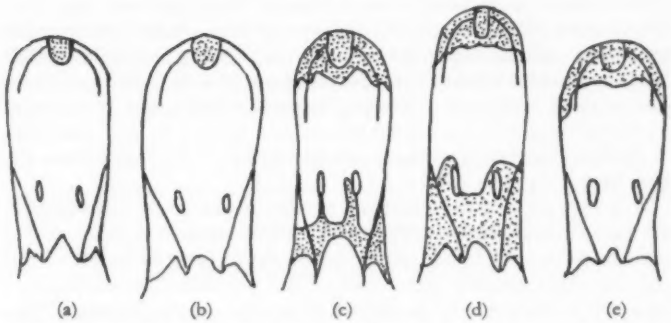

FIG. 1. Bills of (a) Lesser Scaup (*Aythya affinis*), (b) Common Scaup (*A. marila*), (c) the Sutton Courtenay hybrid (presumably *A. fuligula* × *A. ferina*), (d) Pochard (*A. ferina*) and (e) Tufted Duck (*A. fuligula*). (Each is taken from an average specimen and black areas are shown stippled.) Note that the two scaups have markedly spatulate bills with black only on the nail, while the hybrid has the broad black tip that is shared by both its presumed parents and also the black base that is otherwise found only in the Pochard and the Canvasback (*A. valisineria*) of America

in flight it gave a far less sharply contrasting black-and-white appearance than that of the Tufted Duck. This is due in part to there being a fine stippling of grey in the rather dirty white of the secondaries (as is found in the Pochard) with no sharp delineation between pure white and the black tips as is found in the Tufted Duck and the Lesser Scaup. In fact there is scarcely any sign of tips of darker colour on the inner secondaries, while the outer ones have only rather indistinct tips. The Lesser Scaup has a white wing-bar on the secondaries, but it does not usually extend on to the primaries, though this is variable.

(g) **Colour of eye.** The eye was amber, more orange than in the Tufted Duck or either of the scaups.

These characters also preclude the possibility of its being any other known species. Presumably, therefore, it is a hybrid. The adherents of this theory were divided over the question of the bird's possible parentage. A paper by Voous (1955) describes two supposed Tufted Duck × Common Scaup hybrids and their resemblance to Lesser Scaup. The present specimen, however, is presumably a hybrid between a Tufted Duck and a Pochard. Within the genus *Aythya* a crest is found only in the Tufted Duck (though there is a small one in the Ring-necked Duck) while a red head, a deeper-than-yellow eye and a black base to the bill occur only in the Pochard and the Canvasback (*A. valisineria*). The Tufted Duck × Pochard view is strongly supported by the fact that all the characters (a-g) listed above are found in one

of these two species or are intermediate between them and that there are no other characters which disagree with this. It has been possible to exclude all the other species of *Aythya* (including Ring-necked Duck and Canvasback) as likely parents, because each of them possesses one or more additional characters, some of which might be expected to appear in a hybrid, but which are not present in this specimen. A detailed description of the specimen appears in the appendix on the next page.

It is worth noting that these two species, Pochard and Tufted Duck, are the only two members of this genus which breed in Britain and that they are commonly found nesting by the same pieces of water. Thus they have the greatest opportunity, from the distributional point of view, of producing hybrids which will later be seen in Britain. Gray (1958) lists this cross as having occurred in both directions and states that fertile drake hybrids have been recorded. It is therefore probable that more of these birds will be seen in the future and, if they are fertile and breed, some even more confusing specimens may occur through back-crossing.

As mentioned above, Voous (1955) recorded two specimens (both in the Zoological Museum of Amsterdam) of Tufted Duck × Common Scaup hybrids. The photographs and descriptions of these, however, suggest a marked similarity to the Sutton Courtenay specimen and might easily be confused with it.

Further evidence of the occurrence of Tufted Duck × Pochard hybrids was recently provided by Bezzel (1960). Watching on the Ismaning, near Munich, Germany, he recorded such hybrids in eight of the years between 1934 and 1959. His descriptions of these birds differ little from that of the Sutton Courtenay specimen, though some were noted as having red eyes and the crest was not always evident. In April, during migration, there are often many more female than male Pochard in that part of Germany and a few more male than female Tufted Duck. He suggested that it is at this time that the hybrid pairs are formed. Some displays of the two species are rather similar and a display shown by a hybrid male resembled parts of the displays of each parent species. In addition, a hybrid was seen displaying to a female Pochard and he described the supposed offspring of a hybrid × Pochard back-cross. Bezzel's paper also includes references to other records of hybrids.

In view of the confusion which the Sutton Courtenay specimen caused among ornithologists it would seem that any future reports of Lesser Scaup must be treated with extreme caution and that exceptionally good views of all the characters of this species would be essential before the admittance of the Lesser Scaup to the British and Irish List could even be considered.

Among the many ornithologists with whom I have discussed this specimen I am particularly grateful to Drs. I. C. T. Nisbet and A. J. Cain for their comments and for the latter's permission to use for comparison the material in the Oxford University Museum where the specimen (No. B/4171) is now lodged.

APPENDIX—DETAILED PLUMAGE DESCRIPTION

Crown and ear-coverts: feathers copper-brown tipped blackish, giving a faint banded appearance
Forehead, cheeks and lores: blackish with faint copper brown markings
Chin and throat: blackish-brown
Area between ear-coverts and centre of nape: blackish, strongly glossed purple in some lights
Centre of nape, sides of breast and upper breast: black
Breast: browner than above, tips of feathers creamy-white
Belly and sides of body: feathers pale grey with broad whitish tips, giving a general appearance of dirty white under-parts
Vent: feathers greyish-brown, finely vermiculated with white
Flanks: whitish finely vermiculated with greyish-brown
Axillaries: pure white
Under-wing coverts: large inner ones vermiculate grey-brown and white, the rest mainly white except for those on leading edge of outer wing which are greyish
Back: dark greyish-brown with fine bands of white
Scapulars: as back, but with more white
Rump and upper tail-coverts: black
Tail: sepia
Primaries: outer webs of outer four sepia with increasing amounts of ash-grey spreading from the quill (the outermost having the least); outer webs of rest and inner webs of all ash-grey with faint brownish tinge, becoming paler on the inner feathers; outer and inner webs of all primaries have a half-inch tip of blackish-sepia
Secondaries: outer two greyish, rest whitish; outer ones with a quarter-inch tip of greyish-sepia vermiculated with creamy-white, this tip becoming progressively larger and more vermiculated on the inner secondaries until the innermost but one, where nearly the whole feather is vermiculated cream and grey; innermost grey on outer web, grey-brown on inner
Tertiaries: sepia with a few small white dots near tips
Bastard wing and primary coverts: sepia with faint white flecks at tips
All other coverts: dark greyish-brown with pale greyish-brown vermiculation

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VOOUS, K. H. (1955): "Hybrids of Scaup Duck and Tufted Duck (*Aythya marila* × *Aythya fuligula*)". *Ardea*, 43: 284-286.

[In the autumn of 1958, after consultation with Messrs. Peter Scott and R. Wagstaffe, among others, the Records Committee of the British

Ornithologists' Union came to the conclusion that the four or five "Lesser Scaups" reported during the previous winter (including the Sutton Courtenay bird) were probably hybrids of some sort and that therefore the species could not be admitted to the British and Irish List. This view was supported when, in the following winter, Mr. E. H. Gillham was able to take a very detailed description of one of these birds which spent some time in St. James's Park, London: among the points that were wrong for Lesser Scaup were size, mantle pattern, iris colour and a broad black tip to the bill such as the Sutton Courtenay bird had. Until a specimen could be examined in the hand, however, the solution of the problem had to remain a matter of opinion and it was decided not to make any full statement on the subject until more evidence was available. Now that we have this evidence and the conclusions that are set out with it above, it must be assumed that all the other "Lesser Scaups" reported have been hybrids. Since the winter of 1957-58 more than a dozen of these birds have been seen in southern England—Gloucestershire, Berkshire, Surrey, Middlesex, Essex and Cambridgeshire, for example—and some have reappeared in successive years.—EDS.]

An interpretation of variation in the dark-headed forms of the Yellow Wagtail

By Lasse Sammalisto

Institute of Genetics, University of Helsinki

INTRODUCTION

THERE HAVE BEEN several different interpretations of the puzzling variation to be seen in the Yellow Wagtail (*Motacilla flava*). The chief mistake made by most investigators has been that of splitting the group into too many forms on the basis of too few specimens, the most flagrant example of this being in the monograph by Grant and Mackworth-Praed (1952) who listed no less than seven species and 22 races. The apparent confusion in the variation led Meinertzhagen (1954) to the obvious overstatement that it is just the reverse of clinal, while various complicated interpretations have caused much unjustified speculation about the evolutionary history of the group. However, a great step towards the solution of the problem was made by Williamson (1955) when he stressed the importance of secondary contact between populations as a cause of increasing variability in many areas.

Mayr (1956) pointed out that further studies will not throw much light on the problem if they are based solely on specimens in museum collections; and, though the field studies of Schwarz (1956) in Switzerland, of K. Curry-Lindahl (*in litt.*) in Sweden and of myself (Sammalisto 1956 and 1958) in Fenno-Scandia, particularly in Finland, have so far perhaps raised more questions than they have solved, this line of investigation is still indisputably the most promising. Nevertheless, in this paper I do propose to look at the variation on the basis of museum specimens alone. There is a special reason for this, since it appears to me that one important geographical variable has been ignored in all earlier investigations and that a study of this variable may allow a relatively simple interpretation of the variation in the Yellow Wagtail complex.

MATERIAL AND METHODS

There is no complete agreement on whether the dark-headed forms are specifically distinct from the yellow-headed ones. Williamson, for example, considered the two groups to be separate species, while Vaurie (1957) thought that this was not the case. Whatever the taxonomic situation may be, however, the influence of the yellow-headed populations on the dark-headed ones is not very strong, as is shown on page 66. The yellow-heads are therefore omitted from this paper.

The geographical variation in the dark-headed forms is most remarkable in the following respects:

(1) The coloration of the head, which varies from white to glossy black.

(2) The white supercilium, which may reach from the base of the bill to the neck or may be lacking altogether, every intermediate between these two extremes occurring.

(3) The colour of the chin and throat, which may be yellow or white, the amount of the latter colour varying very gradually.

(4) The length of the hind-claw, which varies from 6 mm. to 15 mm.

This variation concerns only the males, however. Although it is possible in some areas—in Finland, for instance—to distinguish between female populations too, this cannot be done over the whole range. Therefore, females have not been studied in this analysis. Only males known with certainty to have been shot on their breeding grounds have been included. To measure the extent of the variation I have examined about 800 specimens in the thirteen institutes listed on page 67. The amounts of black on the head and white on the chin have been estimated in every possible case, and these estimates have been expressed as percentages of a standard value, as has the size of the

FIG. 1. Diagrammatic sketches of the heads of representative males of the three main groups of dark-headed Yellow Wagtails (*Motacilla flava*), to show the standards (100%) used in estimating (*left*) the size of the supercilium, (*centre*) the amount of black on the head and (*right*) the amount of white on the chin and throat (see Figs. 2-4 and Tables 1-3)

supercilium (Fig. 1). Measurements of the length of the hind-claw have been taken in millimetres and are accurate to within 0.5 mm. It should be noted that, because of the bad condition of many specimens, not all measurements could be taken in every case and therefore the corresponding totals in Tables 1-4 are not always the same.

The range of the group has been divided into 17 parts, on the basis of what is known from earlier investigations (Johansen 1946, Mayaud 1952, Williamson 1955, Schwarz 1956, Sammalisto 1956, 1958, Meinertzhagen 1954, Kumari 1940, R. Kroneisl-Rucner orally, and Mayr and Greenway 1960) of the border areas of the different populations. There is one exception: the line which starts from western Europe (the race *flava**) and leads to the pale-headed population of south-west Siberia (*beema*), culminating in the completely white-headed population of outer Mongolia (*leucocephala*), has been omitted. This may be regarded as a simple case of primary intergradation, probably due to a loss of the alleles† which produce the coloration of the head (Johansen 1946). These populations are mentioned in this paper only if there is reason to suspect that they have affected the variability in the neighbouring ones.

The whole area is thus divided into the following parts:

(A) **South-west Europe**: the Iberian peninsula and south France (the area of the race *iberiae*)

(B) **Central Europe**: France (with the exception of the southernmost part), Belgium, Netherlands, Germany, Denmark, South Sweden and the westernmost coastal area of Norway (Jaeren) (*flava*). (Unfortunately, there are no data from Switzerland, Austria and Czechoslovakia)

(C) **Central Mediterranean Europe**: Italy and west Yugoslavia (Dalmatia) (*cinereocapilla*)

(D) **Egypt** (*pygmaea*)

*The nomenclature in this paper follows that of Williamson (1955), with slight modifications.

†See GLOSSARY OF GENETIC TERMS on page 68.

(E) **South-east Europe**: south-east Yugoslavia, Albania, Greece, Bulgaria, Turkey, Lebanon, Syria, Jordan, Iraq and Iran (*feldegg*)

(F) **South Russia**: Ukraine, Kursk, Voronez, Rostov and Krasnodar districts (*dombrowskii*)

(G) **The middle of European Russia**: Latvia, Lithuania, and White Russia; Kaliningrad, Yaroslavl, Ivanovo, Ryazin, Kuibyzev, Chkalov and Saratov districts (*flava*)

(H) **South Finland**: including also Estonia and the Leningrad district (*flava* ≷ *thunbergi*)

(I) **North Fenno-Scandia**: Norway (with the exception of Jaeren), north Sweden and north Finland (*thunbergi*)

(J) **North Russia**: east Karelia, Northern, Kirovsk and Sverdlovsk districts (*thunbergi*)

(K) **The Kalmuck Steppes and the Transcaspian region** (*superciliaris*)

(L) **Kazakstan, Dzungaria, and Russian Turkestan** (*zaissanensis*)

(M) **North-west Siberia**: Omsk district (with the exception of the southernmost part), the northern half of the West Siberian district, and Krasnoyarsk district (with the exception of the southernmost part) (*thunbergi* ≷ *plexa*). (The remaining parts of these three districts, and in addition the Chelyabinsk district, are breeding areas of the pale-headed form (*beema*) mentioned above)

(N) **The middle of Siberia**: north Mongolia and the East Siberian district (*plexa*)

(O) **Yakutia** (*plexa* ≷ *simillima*)

(P) **Ussuria** (*thunbergi*, or *macronyx* of many authors)

(Q) **North-east Siberia**: the coast of the Sea of Okhotsk, Sakhalin, the Kamchatka peninsula, the Chuckchee peninsula, and west Alaska (*simillima* and *tschutschensis*).

RESULTS

The variation in all four variables is given in Tables 1-4 on pages 59-64, and is shown also in Figs. 2-4. As may be seen from the means, the populations can be divided into several groups, using different variables successively as criteria:

1st (supercilium) group. If we use the size of the supercilium as our first criterion, we can divide the populations into two distinctly different groups (Fig. 2 and Table 1): a homogeneous one with a mean varying from 82 to 90, and a heterogeneous one in which the mean varies from 0 to 50. Geographically, the area of the former group extends from western Europe through central Europe (*flava*), south and central Russia (*dombrowskii* ≷ *flava*) and Kazakstan (*zaissanensis*) to north-east Siberia (*simillima*) and Alaska (*tschutschensis*), interrupted by the divergent population of the middle of Siberia and Yakutia (*plexa* ≷ *thunbergi*). This group is very homogeneous with regard to the amount of black, too: the mean varies from 0 to 7, but the only populations having no black at all are those of west and central Europe and central Russia. These populations, which thus seem to be the purest ones, differ from the others in having very little white on

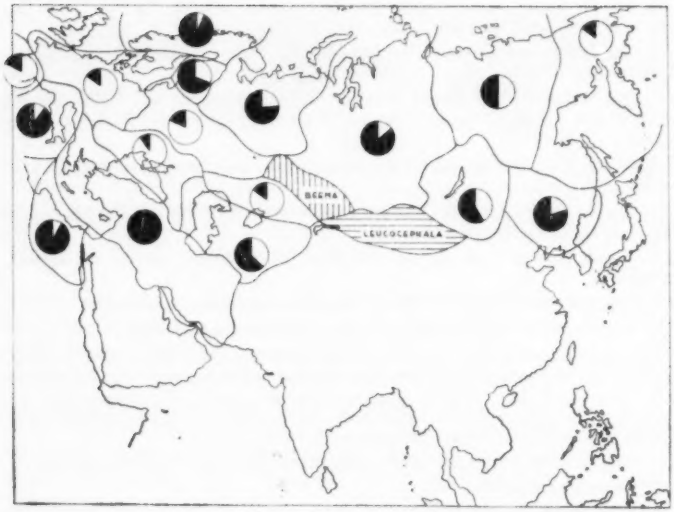

FIG. 2. The size of the supercilium in different dark-headed populations of the Yellow Wagtail (*Motacilla flava*). The circles mark the approximate centres of the seventeen areas on pages 56-57 and the *white* portion of each denotes the average supercilium size of that population, expressed as a percentage of the standard illustrated in Fig. 1 (*left*) (see also Table 1). A completely white circle thus represents 100%

the chin and throat. There is a clear progression from west to east in the length of the hind-claw, as already established by Johansen (1946), with the exception of the Kazakstan population (*zaissanensis*) in which the hind-claw is not longer than in the European one. Below, this group, comprising thus the races *flava*, *dombrowskii*, *zaissanensis*, *simillima* and *tschutschensis*, is referred to as the "supercilium group".

2nd (black-headed) group. In the remaining populations, it is easy to separate subgroups (Fig. 3). Firstly, the Middle East and south-east European populations (*feldegg*, including *superciliaris*) which have very much black in the head—the mean varies from 330 to 500—stand out from all the others, in which the corresponding mean is at most 42. There is no white on the chin and throat in the black-headed populations and, except in the north-eastern part of their range (*superciliaris*), there is no supercilium.

Secondly, I stated above that the purest populations in the "supercilium group" have very little white on the chin and throat. This prompts me to use the colour of the chin and throat as the third

TABLE 1—THE SIZE OF THE SUPERCILIUM IN DIFFERENT DARK-HEADED POPULATIONS OF THE YELLOW WAGTAIL (*Motacilla flava*)

The size of the supercilium is expressed as a percentage of the standard illustrated in Fig. 1 (*left*) on page 56. The grouping of the various populations as "supercilium forms", "black-headed forms" and "intermediary forms" is explained on pages 57-63. The letters A-Q correspond with the areas on pages 56-57 and the italics figure immediately under each letter denotes the number of specimens on which the percentages for that area are based.

	Supercilium forms						Black-headed forms						Intermediary forms				
	A	B	F	G	L	Q	E	I	J	K	M	P	C	D	H	N	O
	33	*63*	*78*	*80*	*28*	*39*	*69*	*111*	*24*	*4*	*20*	*51*	*79*	*6*	*32*	*25*	*18*
0%	1		2	1			69	88	13	2	15	26	56	3	17	5	3
10%								11	1			5	7		1	4	1
20%				3				5				5	3			2	
30%								2	2		1	3	4	1	1	2	2
40%	2	1	1	2		1		2				4	1	2	1		2
50%	1	4	2	4					2		2		1		1	2	2
60%	4	2	1	2	3	4			4			1	2		3	2	
70%	4	4	4	6	5	4				1	1		2		2	1	3
80%		8	9	16	3	7		2	1	1	1	3	1		2	2	2
90%	5	14	10	22	6	8			1			2	1		1	5	2
100%	16	30	49	24	9	15		1				2	1		3		1
110%					2												
Average (%)	82	89	90	82	87	86	0	6	24	38	14	21	11	18	31	42	50

criterion, and Table 3 shows that there is a homogeneous group in which the mean for this trait varies from 6 to 9 and another heterogeneous group in which the mean varies from 12 to 85 (Fig. 4). In the homogeneous group the amount of black increases steadily from east to west; like the area of the first group, this line of primary intergradation is interrupted by the populations of the middle of Siberia and Yakutia. I have earlier suggested (Sammalisto 1956) that the more or less completely black-headed population (*feldegg*) of the Middle East and south-east Europe is a continuation of this northern cline; the geographical and morphological gap between it and the westernmost populations of the northern cline (*thunbergi*) may be due to the isolating effect of the Ice Age followed by the expansion of the European population eastwards. The length of the hind-claw in the third group increases from west to east; this fits in well with the suggestion just mentioned, because the population of the Middle East and south-east Europe possesses a very short hind-claw. The cline in the length of the supercilium of this group is not as clear-cut as that in the amount of black: the Asiatic populations do not differ markedly from each other in the length of the supercilium but the westernmost (*thunbergi*) usually has no supercilium and the Middle

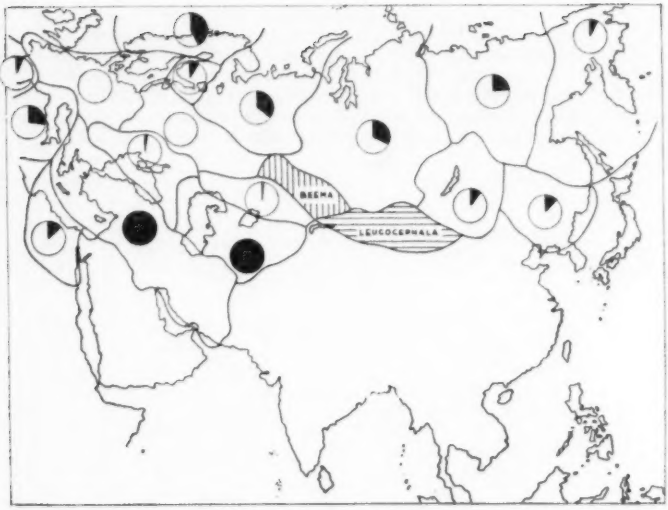

FIG. 3. The amount of black on the head in different dark-headed populations of the Yellow Wagtail (*Motacilla flava*). The circles mark the approximate centres of the seventeen areas on pages 56-57 and the *black* portion of each denotes the average amount of black on the heads of that population, expressed as a percentage of the standard illustrated in Fig. 1 (*centre*) (see also Table 2). A completely black circle thus represents 100% except in the cases of the black-crowned populations in areas E and K (see pages 58 and 61)

East and south-east European one lacks it completely (with the exception of the subpopulation *superciliaris* in the north-eastern part of that area, which will be discussed later).

Below, therefore, the subdivisions of the 2nd group are treated as one under the name "black-headed group".

3rd (intermediary) group. The remaining five populations, despite their apparent dissimilarity, possess several important features in common if we take into account all the criteria used up to now, and in addition the geographical one:

(1) There are moderate amounts of black, averaging from 9 to 26, and at the same time a more or less well developed supercilium, with the means varying from 8 to 50.

(2) Three of the five populations are situated geographically between the areas of the "supercilium group" and the "black-headed group" (for the two exceptions, see below).

(3) There are moderate or considerable amounts of white on the chin and throat, the means varying from 12 to 85.

TABLE 2—THE AMOUNT OF BLACK ON THE HEAD IN DIFFERENT DARK-HEADED POPULATIONS OF THE YELLOW WAGTAIL (*Motacilla flava*)

The amount of black is expressed as a percentage of the standard illustrated in Fig. 1 (*centre*) on page 56. The grouping of the various populations as "supercilium forms", "black-headed forms" and "intermediary forms" is explained on pages 57-63. The letters A-Q correspond with the areas on pages 56-57 and the italics figure immediately under each letter denotes the number of specimens on which the percentages for that area are based.

	Supercilium forms						Black-headed forms						Intermediary forms				
	A	B	F	G	L	Q	E	I	J	K	M	P	C	D	H	N	O
	33	*63*	*78*	*77*	*28*	*38*	*69*	*111*	*24*	*4*	*20*	*51*	*80*	*6*	*34*	*25*	*18*
0%	22	63	72	76	26	25		33	10		8	24	41	3	28	17	6
10%	7		1	1	1	7		7	4			11	3	1		1	3
20%	1		2		1	3		8			2	6	7			3	3
30%	2		1			1		9	1	1	3	3	6	1	1		1
40%			1			1		6	2			6	3	1	3	1	2
50%	1		1					10	2		2	1	8			3	1
60%						1		6			2		2				
70%								6					1				
80%								7	1		1		2		2		1
90%								7					3				
100%								6	2		2						1
110%								1									
120%								3					1				
130%																	
140%																	
150%								1	2				1				
200%							1						2				
>200%			(1)				68	1		3							
Average (%)	6	0	2	0	1	7	500	42	35	330	32	12	26	13	9	10	24

The natural inference from these facts is that the populations included in this group are products of hybridisation between the "supercilium group" and the "black-headed group"; therefore, the term "intermediary group" is used in the discussion below.

The second conclusion which can be derived from this picture is that the white on the chin and throat is, in fact, an indication of the hybrid character of the population in question. This view is strengthened if we examine the situation in the "supercilium group". For the nearer the population in question is to a population belonging to the "black-headed group", the greater is the amount of white colour on the chin and throat, as is easily seen from a comparison between Fig. 4 and Figs. 2 and 3. The only exceptions, the Iberian population and also the "intermediary group" populations of Italy and west Yugoslavia, and Egypt, belong in a class of their own. These populations resemble each other in having much more white on the chin and throat than any other, while there is a clear cline from

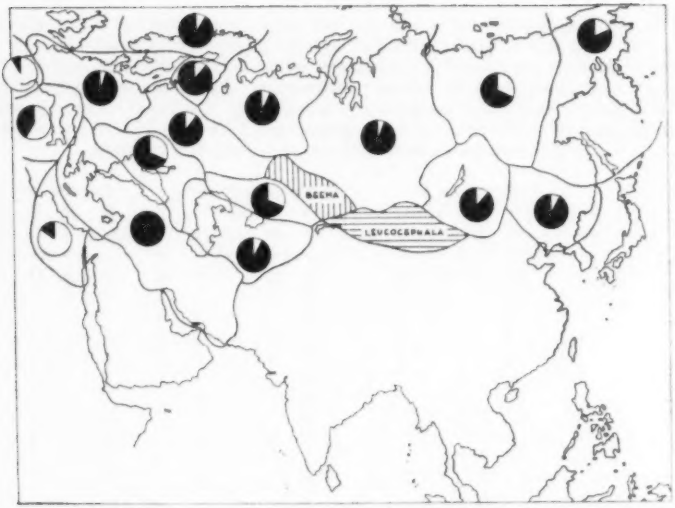

FIG. 4. The amount of white on the chin and throat in different dark-headed populations of the Yellow Wagtail (*Motacilla flava*). The circles mark the approximate centres of the seventeen areas on pages 56-57 and the *white* portion of each denotes the average amount of white on the chins and throats of that population, expressed as a percentage of the standard illustrated in Fig. 1 (*right*) (see also Table 3). A completely white circle thus represents 100%

west to east in a reduction of the supercilium and at the same time in an increasing amount of black. Every intergrade from the Italian *cinereocapilla* to the completely black-headed *feldegg* is found in west Yugoslavia, and the situation seems to be the same in Albania (Ticehurst and Whistler 1932; see also Sammalisto 1958, p. 40). This strengthens the view already expressed by Williamson (1955) that the Mediterranean populations are a result of hybridisation between the European "supercilium population" and the population of south-east Europe and the Middle East. There is a zone of intergradation between the Iberian population and the "supercilium population" in the south of France (Mayaud 1952), as well as between the populations of Italy and south France on the one hand and Germany on the other (the latter belongs to the area of the "supercilium population") in Switzerland (Schwarz 1956) and obviously also in the extreme south of Germany (G. Diesselhorst orally).

There remains one remarkable population, namely that of the Kalmuck Steppes and the Transcaspian region (*superciliaris*). There

TABLE 3—THE AMOUNT OF WHITE ON THE CHIN AND THROAT IN DIFFERENT DARK-HEADED POPULATIONS OF THE YELLOW WAGTAIL (*Motacilla flava*)

The amount of white is expressed as a percentage of the standard illustrated in Fig. 1 (*right*) on page 56. The grouping of the various populations as "supercilium forms", "black-headed forms" and "intermediary forms" is explained on pages 57-63. The letters A-Q correspond with the areas on pages 56-57 and the italics figure immediately under each letter denotes the number of specimens on which the percentages for that area are based.

	Supercilium forms						Black-headed forms						Intermediary forms				
	A	B	F	G	L	Q	E	I	J	K	M	P	C	D	H	N	O
	33	*25*	*80*	*77*	*28*	*39*	*69*	*66*	*23*	*4*	*20*	*51*	*80*	*6*	*32*	*25*	*18*
0%		18	18	46	2	9	69	44	17	2	14	25	7		16	13	3
10%		6	21	12	9	13		11	2	1	3	15	10	1	9	2	2
20%			16	4	3	7		5	2	1	1	8	7		2	4	4
30%			4	9	4	4		1			1	2	5		1	4	3
40%			7	3	1	2		1	1		1		6		2	1	1
50%	3		4		4	1						1	4			1	
60%	1	1	4	1	3	1		1					3		1		3
70%	1		1	1				2					6		1		1
80%	4		4			1			1				4	1			
90%	4				2	1		1					11				
100%	13		1										9	3			1
110%	6												1				
120%	1												4	1			
130%													1				
140%																	
150%													1				
200%													1				
Average (%)	92	5	32	11	31	19	0	9	8	8	6	8	59	85	12	12	32

are only four specimens of it in my material, but they all have much black on the head and a fairly well developed supercilium. It seems obvious that such a population must be the result of hybridisation between the completely black-headed population of the Middle East and the "supercilium population" of Kazakstan (see Williamson 1955). This population is included in the "black-headed group" despite its hybrid character.

DISCUSSION

The picture described above suggests a kind of polymorphic variation in which one extreme has a well-developed supercilium and no black on the head, and the other no supercilium and much black on the head. In other respects, these two extreme forms resemble each other: they have very little or no white on the chin and throat, the length of the hind-claw increases from west to east, and the sexes are more alike in the east than in the west. The offshoot of the "supercilium group"

TABLE 4—THE LENGTH OF THE HIND-CLAW IN DIFFERENT DARK-HEADED POPULATIONS OF THE YELLOW WAGTAIL (*Motacilla flava*)

Measurements are given in millimetres and are accurate to within 0.5 mm. The grouping of the various populations as "supercilium forms", "black-headed forms" and "intermediary forms" is explained on pages 57-63. The letters A-Q correspond with the areas on pages 56-57 and the italics figure immediately under each letter denotes the number of specimens on which the percentages for that area are based.

	Supercilium forms						Black-headed forms						Intermediary forms				
	A	B	F	G	L	Q	E	I	J	K	M	P	C	D	H	N	O
	33	*60*	*32*	*15*	*13*	*14*	*64*	*105*		*3*	*9*	*17*	*56*	*5*	*29*		
6.5	2						1										
7.0	2	4					4	3					1				
7.5	2	3	3		1		5	3					3				
8.0	7	9	3	3	2		13	13					11	2	3		
8.5	5	13	3		2	1	11	17		1	1		11	1	1		
9.0	6	10	10	4	4		13	18		2		1	10	2	5		
9.5	6	10	1	3	2	1	6	22			5	5	8		7		
10.0	2	8	6	3	1	4	7	17			3	1	10		7		
10.5	1		3	1	1	5	3	8				2	2		5		
11.0		3	1	1		2	1	4				4			1		
11.5						1						2					
12.0			2									2					
12.5																	
13.0												1					
13.5												1					
Average (mm.)	8.54	8.85	9.45	9.33	8.92	10.29	8.69	9.15		8.83	9.56	10.94	8.89	8.50	9.57		

No data available

leading to the completely white-headed population of outer Mongolia (see page 56) resembles the "black-headed group" in that the head gets paler from west to east.

Between the ranges of these extremes there are areas which are inhabited by populations exhibiting intermediate characteristics in the size of the supercilium and in the amount of black on the head. These populations have an important feature in common in moderate or considerable amounts of white on the chin and throat. The obviously polygenic nature of the variation has resulted in considerable variation in the extreme populations, too, so that there are no really pure populations even among them. On the other hand, as a result of geographical isolation, some clearly intermediate populations (Iberian peninsula and Kazakstan) exhibit no more variation than these "pure" populations, with which they have been included here although the whiteness of chin and throat—among other things—indicates that they are intermediate.

There is nothing paradoxical in the fact that many marginal populations show most white on the chin and throat: in secondary isolation

the hybrid character will easily strengthen. In cases like this where there have been contacts of many kinds between the populations, the exact taxonomic grouping is not as important as the establishment of the tendencies in the variation.

Any suggestion as to the evolutionary history which has led to the present situation is, of course, highly speculative. However, in the light of the interpretation presented above, the following possibility is at least likely. I suggest that the group has evolved from a population in Europe, where a "supercilium form" inhabited the central lowlands and a completely "black-headed form" the mountain regions of the south-east. The latter first extended its range northwards to Fenno-Scandia, and during this expansion came into contact with the "supercilium form". The "supercilium form" was superior to it in the lowlands, but in Fenno-Scandia an "intermediate form" established itself. This "intermediate form" invaded the east, and during the process the coloration of the head got paler and the hind-claw longer. The "supercilium form" of central Europe also expanded eastwards, but diverged into two evolutionary lines at the border between Europe and Asia. One of these invaded north-eastern Asia and crossed the area of the "black-headed form" in the middle of Siberia and Yakutia, during which the hind-claw got longer. The other led to the depigmentation of the head, the extreme link in this series being the white-headed population (*leucocephala*) of outer Mongolia. The secondary contacts between these three lines have produced an immense variability over vast areas.

This interpretation is at variance with the hypotheses put forward by most earlier authors, who implicitly assumed that the expansion in the northern cline took place from east to west, although this does not seem as natural as the expansion in the opposite direction.

As mentioned above, the genetic basis of the variation in the Yellow Wagtail is obviously polygenic, and this is reflected in the exceedingly gradual nature of the variation, especially in the zones of contact between different populations. There are some additional facts which may afford a clue to a genetical interpretation of differences between populations:

(1) One possible explanation of the presence of white on the chin and throat in the "intermediate group" of populations, and its absence in the parental types, the "supercilium group" and the "black-headed group", is a breakage of some genetic system in connection with hybridisation, a system like that found in complex heterozygotes.

(2) I have interpreted the geographical and ecological differences in the variation between the sexes in Fenno-Scandia as due to sex-linked or sex-limited heterosis. In the former case this would mean that many of the factors separating the two parental types from each other

are located in the sex chromosomes. Since in Finland the intermediate males are heterotic but the females not, this theory at least cannot be ruled out, as the female is the heterogametic sex in birds.

(3) Hybridisation has led to different results in different parts of the range of the Yellow Wagtail complex. In Fenno-Scandia the two extreme features, namely the presence of a great amount of black on the head and a well-developed supercilium rarely occur together in the same specimen (*flava* ≷ *thunbergi*). In the Kalmuck Steppes, the Transcaspian region (*feldegg* ≷ *beema* or *feldegg* ≷ *flava* or *feldegg* ≷ *zaissanensis*) and Yakutia (*plexa* ≷ *simillima*), on the other hand, this phenomenon is not at all rare. These differences might be produced by modifier genes evolved during the course of the adaptation of the different populations to their environments.

(4) In Fenno-Scandia hybridisation has led to a population which is morphologically more or less intermediate, but in south Russia and (not so clearly) in Italy and west Yugoslavia the population is morphologically nearer to one parental type than to the other. This might be due to the effect of modifier genes or to differences in fitness, with the result that the back-cross products of the first generation intermediates with one parental type are superior in fitness to the back-cross products with the other parental type and to the first generation hybrids.

(5) As mentioned earlier in this paper, no complete agreement has been achieved among authors on whether the yellow-headed forms constitute a separate species. Hybrids between the dark-headed forms and the yellow-headed ones have been identified both among skins in museum collections and in the field (e.g. Sammalisto 1958 and Milne 1959).

I have tried to study the influence of the yellow-heads on the variation in the dark-heads by taking into account the amount of green feathers on the head (the colour of the head of the yellow-heads varies from dark green to bright yellow) and by the presence of yellow in the supercilium (which is always yellow in the yellow-heads), but these features occur so rarely in the dark-headed forms that it is not possible from my data to detect any differences between populations in these respects. This indicates that the exchange of genes between the dark-heads and the yellow-heads is not very effective and that one is justified in treating the variation in these two groups separately.

A final clarification of the Yellow Wagtail problem can certainly be arrived at only by intensive field studies. As it appears possible to link the genetical, ecological and perhaps also the cytological aspects of the problem, the results of such a study might be of value to systematics and population genetics. For instance, it would be interesting to ascertain whether there are differences between marginal

and central populations comparable to those discovered by Carson (1955) in fruit flies (*Drosophila*). He found that marginal populations have free crossing-over and are capable of further evolution, "whereas central populations with a high degree of chromosomal polymorphism suffer drastic reduction in ability to undergo recombination by crossing over." Dobzhansky (1955) particularly stressed the importance of chromosomal polymorphism in the adaptation of *Drosophila*, and so did Carson, but it is the latter's primary contribution that populations with free recombination, be they marginal or not (there can be species in which all populations are "marginal" in this sense), are evolutionary centres since the possibilities of creating new genotypes are not restricted by chromosomal polymorphism. Some of the facts presented above can perhaps be interpreted as due to chromosomal polymorphism, and it would certainly be fruitful to compare the evolutionary pattern in animals as remote from each other as the Yellow Wagtail and *Drosophila*. First of all, the genetic basis of the head-colour should be clarified. This would be possible only by far more extensive colour-ringing than has been done so far, as young birds in general only rarely settle themselves in the vicinity of their birth-place in their second year. The cytological aspect would also be difficult to study. All aspects of the work would demand help from many amateur ornithologists, and also an effective co-operation of scientists in both East and West.

ACKNOWLEDGEMENTS

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SUMMARY

(1) Geographical variation in the dark-headed forms of the Yellow Wagtail (*Motacilla flava*) was studied by the analysis of four variables: the length of the supercilium, the amount of black on the head, the amount of white on the chin and throat, and the length of the hind-claw.

(2) The populations could be separated into three groups: (a) those with a well-developed supercilium and very little black on the head (if any); (b) those with the

supercilium lacking or reduced and much black on the head; and (c) those intermediate in both supercilium and amount of black on the head.

(3) The area occupied by this third group lies between the areas of the two. A characteristic of the intermediate population is the presence of moderate or considerable amounts of white on the chin and throat, whereas this characteristic is lacking, or almost so, in the other two groups.

(4) It is suggested that the first two groups are the parental types and the third their hybrid forms. As the basis of the variation is obviously polygenic and isolation is not complete, there are practically no pure populations and over vast areas the variation is considerable.

(5) Speculations are advanced concerning the evolutionary history of the group and the nature of the genetical differences between the populations.

GLOSSARY OF GENETIC TERMS

alleles: different genes occupying the same relative positions in corresponding chromosomes

back-cross: crossing of a hybrid with one of that hybrid's parental stocks

chromosomes: permanent structures in the cell nucleus carrying the genes in linear arrangement

crossing-over: interchange of genes between chromosome pairs

cytology: study of the structure and activities of cells

genes: units of heredity capable of reproduction and mutation

genotype: genetic constitution of an individual

heterogametic: applied to the sex in which there are both male- and female-producing (X and Y) gametes or reproductive cells (in mammals and most insects this is the male, in birds the female)

heterosis (adjective *heterotic*): hybrid vigour, by which hybrids possess a selective advantage against their parental forms.

heterozygote: offspring of dissimilar parents which produces different types of young

modifier: gene which induces an alteration of a particular mutant effect

polygenic: determined by many genetic factors

polymorphism: occurrence of different forms in one species

recombination: formation in offspring of combinations of genes not present in either parent

sex-limited: gene expressed in only one sex

sex-linked: gene or character connected with one sex

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Some photographic studies of the Nightjar

Photographs by John Markham, Ronald Thompson, C. R. Brown, Eric Hosking and M. S. Wood

(Plates 10-17)

IN GENERAL WE TRY to publish photographs for their biological interest or because they illustrate points of identification, rather than for their aesthetic value. This aim is always borne in mind in the selection and presentation of the photographs in our series "Studies of less familiar birds", but we are more than prepared to interrupt this series with sets of photographs of species that nest commonly in Britain and Ireland when we receive prints which are unusual or have something new and interesting to show. These photographs of the Nightjar (*Caprimulgus europaeus*) include some in both these categories.

In this set there are two photographs that seem of outstanding interest. Plate 11 shows a female Nightjar perched on a dead stump which was about ten yards from her nest in Kinmel Park, just on the Flintshire side of the county boundary with Denbighshire; the male is immediately overhead and apparently braking, judging from the widely spread and depressed tail and the forward-curved wings.

As this photograph was taken at night by flash, so that Ronald Thompson was alternately dazzled by the light or unable to see because of the darkness, it is impossible for him to say exactly what was happening. The birds may have been about to copulate, but he considers this unlikely. The female was in the habit of flying to this stump in daylight when disturbed from the nest. At night both birds used it as a perch. On the night in question he knew that a Nightjar was on the stump and he could just discern the male flying round and calling softly. He suggests that both birds were rather puzzled by the flashes and that there is possibly no special significance in this photograph. It may simply be that he released his shutter just as the male was coming near to the female. There were small young in the nest at the time (plate 10), but this perhaps does not entirely preclude the first suggestion since Nightjars sometimes start their second broods when the young of the first brood are as little as ten days old, though more usually when they are about 13 days old and up to about 17, the male taking them over while the female lays and incubates again (the young start to fly at 14-18 days and become independent at between four and five weeks). Incidentally, this particular photograph unfortunately became slightly fogged before it was developed, probably as a result of the slide being taken out of its case in strong sunlight, and this is the reason for the slightly ethereal effect.

The Handbook states that the Nightjar "normally perches lengthways on branches, resting on breast, but will exceptionally perch across branch; also, with body more slanting, on bush, stump, or . . . tip of young conifer, etc., or on outer twigs on top of larger tree". It also states that the song is "delivered with closed bill". These two statements are still generally accepted and therefore the photograph on plate 13 is of special interest. John Markham took it at about 10 p.m. on 9th July 1960 at Minsmere, Suffolk. This male Nightjar had been in the habit of singing from this post for the previous five or six weeks. Whenever it alighted on the post it used to start churring immediately while still standing on its short legs and tiny feet. After about 20 or 30 seconds it would either gradually lower itself on to its belly, without a pause in its song, or leap into the air to chase a neighbouring male with which it was having a lot of trouble. On the occasion when the photograph was taken it began to churr immediately on alighting, as usual, and Mr. Markham waited for about ten seconds for the song to gain its full strength before he released the shutter. His reason for waiting was that he had long suspected, from the nature of the sound, that sometimes Nightjars sing with the mandibles slightly parted, and this certainly appears to be the case in this photograph. The inset on plate 13, which was taken four years earlier at Walberswick in the same county, shows another male

PLATE 10. Pair of Nightjars (*Caprimulgus europaeus*) changing over at nest, Flintshire, June 1950. The male often covers the eggs when the female feeds and both brood the young; tiny chicks can just be seen here (*bottom right*). Note the white-spotted wings and tail of the male (pages 69-71) (*photo: Ronald Thompson*)

PLATE 11. Male Nightjar (*Caprimulgus europaeus*) braking above perched female, Flintshire, June 1950. These birds may have been about to copulate or were perhaps puzzled by the firing of the flashes (page 70) (*photo: Ronald Thompson*)

PLATE 12. These illustrate the completeness of the bird's camouflage, the effect being lessened when it opens its eyes. In feeding (*bottom*) the parent puts its beak into the chick's gape (*photos: Eric Hosking and, centre, M. S. Wood*)

PLATE 14. Male in flight, Flintshire, June 1950, illustrating white wing and tail markings (*cf.* plate 17), large eye, and small bill and legs (*photo: Ronald Thompson*)

PLATE 13. Male Nightjar (*Caprimulgus europaeus*) churring on stump, Suffolk, July 1960. Note the slightly open bill and the even more surprising fact that the bird is standing, not resting lengthways along a branch (page 70). Inset, male churring from a high upright tree, Suffolk, July 1956 (*photos: John Markham*)

PLATE 15. Male Nightjar (*Caprimulgus europaeus*) brooding young on marram dunes, Lancashire, 1912. Taken, surprisingly, nearly 50 years ago, this shows a less familiar habitat (though Nightjars will also nest on shingly beaches). The egg-shells are left lying and the chicks soon start moving off (*photo: C. R. Brown*)

PLATE 16. Left, Nightjar (*Caprimulgus europaeus*) yawning, showing the enormous extent of the open gape compared with the small bill (*photo: Eric Hosking*). Below, female and young, Suffolk, July 1956; an unusual front view illustrating the broad flat head, the row of long and very stiff bristles directed forwards and outwards along the edge of the upper mandible, and again the remarkable camouflage of the protective plumage (*photo: John Markham*)

PLATE 17. Female Nightjar (*Caprimulgus europaeus*) fluttering away over bracken, Suffolk, July 1960. This delightful and unusual view from above and behind well illustrates the lack of white spots on the outer primaries and outer tail-feathers of the female (*cf.* plates 10-11, 14-15) (*photo: John Markham*)

balanced precariously on one of five very similar song posts that it was in the habit of using regularly. This bird had no need to choose such awkward perches, for its territory contained scores of trees with horizontal dead boughs at almost the same height. Another male, also in 1956, which Mr. Markham frequently saw using a horizontal bough every evening, nearly always alighted crosswise or at an angle of 45° and sang for a minute or so in that position before arranging itself along the bough. Thus it seems that Nightjars vary individually in their singing behaviour more than is generally supposed. Incidentally, at another site in 1960 Mr. Markham saw the female alight near the lower end of a sloping dead bough and then walk carefully, just like a pigeon, up to the top before it gently lowered its body and relaxed.

Two other pictures in this set which also seem especially striking to us are those on plates 10 and 17, by the same two photographers. Ronald Thompson's photograph of a change-over at the nest (plate 10), the male coming in to land and passing in front of the female as the latter takes off, is most delightful and very interesting, while John Markham's shot of a female fluttering away over the bracken makes a most unusual and arresting study. Incidentally, a comparison between this plate and any of those of males in flight (plates 11, 14 and 15) brings out the differences between the wing and tail markings of the two sexes, as also does plate 10.

The shape of the Nightjar's broad flat head is well shown in plates 15 and 16b, while in the latter one can just see the line of long and very stiff bristles along the edge of the upper mandible. It is also interesting to compare the tiny beak as it appears in most of these photographs (particularly plates 13 and 14) with the huge gape that is revealed on plate 16a as the bird yawns. The Nightjar of course catches its insect food in flight and such a gape is necessary to secure the moths and beetles which form nine-tenths of its prey. Plate 12c illustrates how the beaks of adult and young are arranged as the parent passes food to its chick, and a comparison of plates 12a and 12b with this one demonstrates the way in which the closed eye aids the camouflage of the sitting bird. Some of the differences in habitat are also brought out here: nest-sites vary from fairly overgrown wood edges (plate 10) to open commons (plate 12) and, less familiar, marram-covered sand-dunes (plate 15) and even shingle.

In conclusion, one cannot refrain from drawing attention to the fact that C. R. Brown's photograph on plate 15 was taken almost 50 years ago and yet holds its own surprisingly well with all the others.

I. J. FERGUSON-LEES

Notes

Ring-necked Duck in Co. Armagh.—A male Ring-necked Duck (*Aythya collaris*) stayed on the lake in the Public Park, Lurgan, Co. Armagh, from 20th March till 1st May 1960 and was seen on many occasions by various observers. It then disappeared, but returned on 25th September and was seen either there or on the shore of Lough Neagh till at least 1st January 1961.

The bird was originally found late in the afternoon on 20th March by R. W. Culbert who took field notes in the fading light. During the following week he contacted S. Penney who at once identified it from the description. Subsequently, it was seen almost every week-end although it was seldom, if ever, present on Saturdays owing to the activities of speed-boat enthusiasts. It was usually in the company of a small flock of Tufted Ducks (*A. fuligula*)—as it was when first discovered—and it mostly appeared to be asleep. It was invariably the first to make its way out to the middle of the lake, still apparently asleep, at the approach of people. It was always easy to pick out from its companions by its very striking grey and white side-patch and by its habit of keeping its tail almost permanently cocked. When alarmed, it stretched out its neck and then its very distinctive head-shape and pied bill were extremely obvious. On 10th April the bird was watched over a long period by W. Finley, I. C. McDonald, C. Watson, R.W.C., T.E. and S.P. and it was then that the main field notes for the following description were taken:

> Head and neck black, the latter with an obscure brown ring round the base (this was seen clearly only on one occasion by R.W.C.). Breast, upper-parts, tail and under tail-coverts also black; no light edging was noticed on the tail (*cf. Brit. Birds*, 52: 430). Flanks mostly a soft mid-grey but with the anterior portion a clean white which extended up the sides of the breast in a contrasting crescent; the hind portion of the side panel tapered off more than in a Tufted Duck and the panel itself seemed to extend over a greater area, so that the black of the back was noticeably less extensive than the black in a Tufted Duck. Bill noticeably larger than a Tufted Duck's and metallic grey with two conspicuous white rings round it, one at the base and one just behind the dark tip. Eyes always appeared deep orange or orange-red. Build similar to Tufted Duck, although on occasion it appeared somewhat heavier. Head shape most distinctive: no tuft, but instead a noticeable "knob" on the back of the head, giving a conical or peaked effect.

A few attempts were made at photography, but even with long-range lenses the wariness of the bird made it impossible to obtain good results.

When it returned to the park in the autumn it was first seen by L. Kersley and R.W.C. on 25th September. It then seemed to be in the remains of eclipse plumage and there appeared to be little contrast

between the crescent and the remainder of the side panel. R.W.C. saw it again on 9th and 30th October, and 20th November. By the last date it was in plumage similar to that in March and April. On 4th December it was seen with Tufted Ducks two miles north of Lurgan, on the south shore of Lough Neagh at Kinnego Harbour. By 25th December it had returned to the Park (when it was seen to throw its head back in display on one occasion) and it was last observed there on 1st January 1961 by R.W.C., W.F. and S.P. THOMAS ENNIS

Red-flanked Bluetail in Northumberland.—On 16th October 1960, at Hartley, Northumberland, B.G. and D.T.P. saw a bird which later proved to be a female Red-flanked Bluetail (*Tarsiger cyanurus*). This was at 2 p.m.; they telephoned D.H. and he arrived an hour later. The three of us then watched the bird until about 4.30 p.m., by which time it was becoming dusk. The following description was obtained mainly from a distance of 10-15 yards with telescopes in good light and sunshine, but the bird was also seen as close as five feet:

> Nape and crown olive-green (also one or two bluish feathers on latter which were sometimes ruffled up to give an almost half-crested appearance). Superciliary and eye-ring cream. Throat and chin cream. Ear-coverts, sides of throat and narrow band across breast all dirty grey. Flanks orange; belly creamy-grey; under tail-coverts white. Back, scapulars and secondaries olive-green; primaries chestnut. Small black mark, with narrow cream stripe immediately below it, on front edge of folded wing and thin black line on rear edge (but none of these markings showed in flight). Tail rounded and metallic blue, darker in centre and at tip, blue extending on to rump. Eye black; bill black; legs long and black.

About 20 yards from the cliff edge at Hartley there is a disused army shooting butt with brambles growing down the inland side. It was in these brambles that the bird was first seen and subsequently spent much of its time. It was tired and consequently allowed a close approach, especially in the first hour when it slept a lot. It was also seen on an adjacent fence, as well as in short flights. When feeding it hopped on the ground and appeared to be catching grasshoppers, but it also once attempted to take an insect on the wing after the manner of a flycatcher. In general appearance and movements it resembled a Redstart (*Phoenicurus phoenicurus*), although it appeared slightly smaller and had a more upright stance (quite apart from being distinctively plumaged). Its call-note *tick-tick* was also reminiscent of that of a Redstart, but harsher.

B. GALLOWAY, D. HOWEY and D. T. PARKIN

Pallas's Warbler in Essex.—On 16th October 1960, at Walton-on the-Naze, Essex, we found a very small warbler which we at first took to be a Yellow-browed Warbler (*Phylloscopus inornatus*), but

which later proved to be a Pallas's Warbler (*Ph. proregulus*). The bird was found in a clump of tamarisk bushes on the shore and was under observation from 12.50 to 5.15 p.m. We made several attempts to catch it in a mist-net, but it continually passed through the mesh. However, we were able to take the following detailed description:

> Size as Goldcrest (*Regulus regulus*). Crown and nape dull green. Broad, very bright yellow stripe over eye, extending from bill on to side of nape; slightly paler yellow crown-stripe from forehead to nape, a little narrower than the superciliary, but broadening considerably on nape and edges becoming less sharply defined; dark line from bill through eye, underlining the superciliary. Cheeks dirty yellow. Rest of upper-parts, except rump, clean bright green, brighter than in Firecrest (*R. ignicapillus*). Rump bright greenish-yellow, appearing yellow except at very close range and contrasting markedly with rest of upper-parts, sharply defined and not shading into green of back. Wings slightly darker than back, but still bright green and with yellow sheen on secondaries; tips to median and greater wing-coverts yellow, forming conspicuous bars (much more marked on greater coverts). Tail dark, rather short. Under-parts generally whitish, but throat and breast dingy, and flanks and under tail-coverts yellow. Bill and legs brownish.

Our initial impression as the bird flitted away from us was of a yellow-rumped Firecrest. The most striking features at any distance were the very long and bright yellow superciliary, the yellow wing-bars and, especially when it was hovering, the yellowish rump. It was tremendously active, more so than any other bird we had seen. The whole time it was under observation it was moving and continually feeding with actions reminiscent of a Goldcrest, but much more dynamic. It fed both in the tops and bottoms of the bushes, but seemed to prefer the lower branches. There it flitted from twig to twig, frequently hovering to pick at the tip of one or at the underside of a spray of leaves and, on occasions, hanging upside down to do this.

R. B. CLARKE, M. COATH, R. J. JOHNS and D. B. D. JONES

Reviews

Våra Fåglar i Norden (Our Birds in the North). Second edition edited by Kai Curry-Lindahl (Swedish text). Bokförlaget Natur och Cultur, Stockholm, 1959 and 1960. Volumes I and II, 1022 pages; coloured and black-and-white plates, and maps. (Four volumes: Sw. Kr. 430.)

Though *Våra Fåglar i Norden* first appeared only thirteen years ago, there is already need for its revision, and in particular for the incorporation of the mass of fresh material which has since accumulated. This has been undertaken by the secretary to the editors responsible

for the original text, Dr. Kai Curry-Lindahl. To conform to modern practice, he has adopted the Wetmore system in place of that of Hartert—perhaps the greatest single difference between the two editions. Precedence is again given to birds on the Swedish list over those not recorded from that country though known to occur in Denmark, Norway or Finland, and the latter are relegated to the concluding section of the work. Thanks to careful editing, the whole will be completed in four volumes. Besides giving an account of avian morphology and biology, and a brief but most interesting review of the study of migration at Swedish observatories, the two volumes now published deal with 126 of the birds found every year in Sweden, including breeding species, passage migrants, marine species such as the Fulmar and Gannet, and several introduced forms. Each of these is the subject of a "popular-scientific" ("populärvetenskapliga") account written by a naturalist acquainted with it in the field and largely based on his personal experience. Where no fewer than 22 writers are concerned, it is hardly surprising to find their contributions differing in style as well as in length. In some the tendency is more towards the popular and anecdotal approach, the field-characteristics of the Dotterel being presented in the form of a telephone conversation with a novice! But all make pleasant reading and contain a wealth of information on habits, behaviour, breeding biology, and ecology.

Space unfortunately does not allow of more than occasional quotation from these essays. Swedish and Finnish observers have discovered that while some Goldeneye ducklings jump from the nest, others are carried in their parents' bills. A Red-breasted Merganser duck will drive away another and adopt her brood. The northern race of the Buzzard, *vulpinus*, is described as differing from the nominate form in its preference for swampy woods and in lining its nest with witch-hair lichen (*Usnea*). The prey brought to a Swedish Black Kite's nest included a Red Squirrel, a thrush, a Mallard, a Tufted Duck and two Curlews; and the remains of a Crane were found in one White-tailed Eagle's eyrie. Mink have become a serious menace to harriers and other marsh birds in some localities. Excellent accounts, based on original field-notes, are given of the lekking of the Great Snipe and the hilling of the Ruff, and attention is drawn to the little-known displays of the female Dotterel in which as many as six or more birds take part. The question whether the Woodcock lays two clutches in Sweden—as the Common Snipe regularly does—is discussed at length. Curry-Lindahl appears dissatisfied with much of the evidence in support of claims that the Woodcock carries its young, pointing out that two Swedish observers who have ringed many broods have yet to see this happen. The small Arctic race of the Ringed Plover, *tundrae*, becomes a highland form in parts of its

Swedish range, nesting on lichen-grown, tundra-like fells. As in Great Britain, the Little Ringed Plover prefers gravel-pits and the like, often far inland. Another bird to take advantage of the workings of Man is, surprisingly enough, the Osprey, which in some places builds on pylons. The histories of some migrants—such as the Black Kite and several waders—are extended to cover their winter-quarters. Some writers have included in their scope old historical records and traditions. Curry-Lindahl comments on the appalling slaughter of Herons in the palmy days of falconry, and tells us that at one time the Black Stork was generally known in Sweden as "Odin's Swallow" ("Odens svala"), a name recalling the awe in which the bird was held in pagan mythology and still perpetuated in certain place-names.

If these essays call for any general criticism it is that Norwegian and Finnish sources might have been more frequently and more extensively quoted. For example, one must look to the editor's supplementary notes for any reference to the breeding of the Fulmar, Gannet and Smew in Norway, and the account of the White-tailed Eagle might have gained by the inclusion of data from its strongholds along the Norwegian coast. Again, beyond a few lines on Landmark's observations on the Little Stint's tameness at the nest, no use has been made of the many excellent records of the breeding of that wader in Finmark.

The more general essays are supplemented by notes in smaller print, and more concisely written, on plumage, voice, general distribution, status in Sweden, breeding, migration and hybrids. The reader is given not only the present-day Swedish range of each species in full, but a detailed history of local changes in its status, the two together sometimes covering as much as four or five pages. That many birds have lost ground in the course of the century is hardly surprising. No White Storks have been reared on Swedish soil since 1943, climatic changes being no doubt partly responsible for the loss of these handsome birds. With the ceaseless encroachment of agriculture and, latterly, industry upon marshes and heaths, such birds as the Bean Goose, the Golden Plover and the Wood Sandpiper—to name but three—have disappeared from many of their haunts. Sportsmen and "pot-hunters" have reduced the numbers of others to dangerously low levels. Wholesale butchery of moulting birds in the summer finally exterminated the Grey Lag Goose on one marsh in Småland and had made alarming inroads on the Bean Goose population further north.

Overshooting is also regarded as the principal cause of the general deterioration in the Great Snipe's status. A century ago this wader was still considered to be reasonably common in southern and central Sweden. Even then, however, it had already begun to lose ground. In one district a sportsman would be lucky to see twenty or thirty birds

in the course of a day spent on a marsh where, thirty years before, ten times as many could be flushed. Today Great Snipe are such rarities over much of central and southern Sweden that it is quite an event for one to be identified and the last twenty years have yielded a bare half-dozen records. From the more northerly provinces comes a like tale of increasing scarcity and deserted breeding-stations; but a few pairs contrive to maintain a footing in certain favoured localities, particularly in Jamtland. Curry-Lindahl admits that recent changes in the Swedish climate must be taken into account, but it is apparently generally agreed that the excessive toll taken by sportsmen could alone have brought this interesting bird to near-extinction in Scandinavia. We read of 136 head falling to a lone gunner on one marsh in three days and—worse still—of sixty males snared at a lek in the course of a night! It is hardly surprising that the Great Snipe is now a far rarer visitor to Britain and Ireland than *The Handbook* suggests.

Nevertheless, in spite of these sad declines, the picture as a whole is not entirely discouraging. Some species banished earlier in the century have succeeded in gaining a fresh footing, amongst them the Bittern and the Avocet. Others that were at one time perilously near extinction have recovered and the Marsh Harrier, Kite and Osprey in particular have all benefited by the protection now extended to birds of prey. The imposing group of birds which are now more numerous and more widely distributed includes the Black-throated Diver, the grebes, several ducks, the Water Rail and the Spotted Crake, the Woodcock and the Partridge, the last recently reported as far north as Tornea. Finally, Sweden has gained several species within the last few decades, and three of these—the Black-necked Grebe, the Montagu's Harrier and the Black Kite—appear in the volumes under review. The Black Kite now seems to have established itself in Norbotten, about 900 miles to the north of its only other Swedish breeding station. The Red-footed Falcon has bred once, in Öland. A Barnacle Goose seen with two young in Harjedalen in 1952 had probably escaped from captivity somewhere, even if it was not a straggler from Tayfield.

Where a species is represented by more than one race, the distribution of each is carefully traced, as well as the area in which intermediate forms are to be found. The ranges of the two races of the Buzzard overlap and interbreeding occurs. *B. vulpinus* predominates from Värmland northwards, but *B. buteo* has been found nesting in Pitea Lappmark. In Norrland some breeding Goshawks have been identified as examples of the race *buteoides*, which perhaps replaces *gentilis* in Tornea and north-east Norbotten. Capercaillie from the south of Sweden are referred to Brehm's race, *major*, and those from the north to the nominate form, the forests for more than 200 miles—

from 60°N to 64°N—being inhabited by nondescripts. It is the nominate race of the Hazel Hen which is found in Sweden except in the extreme south, where birds approaching the central European *rupestris* are common, and in the north, where some resemble the paler, greyer *sibiricus*. The southern race of the Golden Plover breeds over a wide area with its northern limits through Dalsund, Väastergötland, Småland, Öland and Gotland. Of the two races of the Dunlin, *schinzii* replaces *alpina* from Värmland southwards, but birds referable to neither have been obtained in Lapland.

Notes on the status of the different species elsewhere in Scandinavia appear in the short paragraphs on general distribution and, considering the book's title, seem disappointingly brief in some cases. Recent Norwegian records of the tundra form of the Peregrine, *caeruliceps*, are entirely passed over, although one of these referred to a breeding bird. Much of interest is to be found in the well-written sections on breeding biology, however, though here again one regrets the failure to make fuller use of Finnish and Norwegian material in some. No account is given of the nesting of the Brent Goose in Spitsbergen, for example. Norwegian and Finnish records have not, however, been overlooked in the preparation of the very full paragraphs on migration, which students of that subject will find invaluable.

Apart from the excellent outline maps supplementing the paragraphs on distribution and migration, and a well-executed painting of ducks' specula, *Våra Fåglar i Norden* is illustrated entirely by photography. Unfortunately, with only one or two exceptions, the colour plates have been taken from mounted specimens. Taxidermy, however skilful, has its limitations, and these the camera will always reveal. A faded specimen appears to have been chosen for the plate of the Kite, and the colouring of that of the Kentish Plover is misleading. With some species only the adult male is figured in colour, and in one—the Montagu's Harrier—only the adult female. Many of the numerous black-and-white illustrations, on the other hand, cannot be too highly commended. Some, such as that of a Great-crested Grebe feeding its chick with a feather, show rarely-observed habits. Amongst those of exceptional merit as examples of the photographer's art may be mentioned the fine series of the White-tailed Eagle, some of those of waders in flight, those of a Green Sandpiper incubating on a stump, and the two of a Wood Sandpiper with its eggs in a Fieldfare's nest. It would be interesting to know how the grim sequence of a Golden Eagle attacking and killing a fox came to be taken.

H. M. S. Blair

Evolution above the Species Level. By Bernhard Rensch. Columbia University Press and Methuen, London, 1959. xviii + 419 pages; 113 text-figures. (Original German edition 1947, second edition 1954). 63s.

This substantial volume does not contain much of interest to the ornithologist, but it is a "must" for all serious students of evolution. The amateur will not find it easy, partly because the discussions are sometimes handled in a rather abstract manner, partly because the English is not always good. The intention of the book is to show that "very probably the major trends of evolution are brought about by the same factors that bring about race and species formation." This conclusion has been reached already by various authors (e.g. Mayr) in Britain and America and is generally accepted. Apparently in Germany there are still enough people who postulate superior and unique guiding principles of evolution to make a full-length treatment of the subject necessary. What saves this book from being only a recapitulation is the excellent account of Professor Rensch's own work on evolutionary trends in genera, families and other groups above the species; this makes up the greater part of the book, and is an important contribution to the study of evolution.

The first three chapters are a survey of evolution up to the species level, i.e., of how populations become recognisably different, both geographically and in the course of time in a single evolutionary line. It is the least satisfactory part of the book, being both too abstract and too superficially documented. Less general assertion and the use of a few thoroughly-discussed examples would have given a clearer impression of the subject. Then a chapter is devoted to refuting ideas of orthogenesis, as has been done already by G. G. Simpson in, for example, his excellent little book *The Meaning of Evolution* (Mentor Books 1951). The important conclusion is reached that the demands of living in a particular way, in a particular niche, are what usually govern the evolutionary direction taken by a particular sort of organism. Professor Rensch's vivid awareness of the importance of ecology gives to his discussions a welcome and wholesome flavour not to be found in the works of many other evolutionists. The remainder of the book deals with adaptive radiation (the splitting of a stock into different sorts adapted for different modes of life) with special reference to the effects of allometric growth—the production of horns, spines, tail-feathers and other appendages of quite disproportionate length by means of a slight increase in body size. Then parallel evolution and convergence are discussed, the evolution of new types of structure, and lastly the evolution of consciousness.

A. J. CAIN

Letters

The Len Howard Appeal

Sirs—All readers of Miss Len Howard's books *Birds as Individuals* and *Living with Birds* have been distressed to learn that her life's work is threatened by building on the land next to her garden sanctuary. For twenty-one years Miss Howard has studied the birds, and especially the Great and Blue Tits, of her garden at Bird Cottage, Ditchling, under the South Downs a little north of Brighton. Her own garden, however, is so small, only 20 yards wide, that its value as a sanctuary and place where her fascinating observations can be made depends on the surrounding land being undisturbed.

Already one neighbouring plot has been built on, to the grave detriment of Miss Howard's work, and now another adjacent plot, an old orchard of great importance as territory for her birds, is threatened. It is proposed that this plot should be purchased and vested in trustees in order to safeguard permanently Miss Howard's work.

We appeal for £7,500 to enable this to be done, and to provide a sufficient margin for emergencies and for future maintenance of the property. Will you please help by sending a donation to "The Len Howard Appeal", c/o Westminster Bank Ltd., Horsham, Sussex?

ALANBROOKE — TUFTON BEAMISH
JULIAN HUXLEY — R. S. R. FITTER
JAMES FISHER — D. B. MAYNARD
(*Hon. Secretary*)

"The Helsinki Congress and the future"

[A number of valuable comments have been received from leading ornithologists at home and abroad on the problems concerning international ornithological congresses, which were raised in a special review in our October issue under the above title (*Brit. Birds*, 53: 447-452). Some of these were not meant for publication; the remainder, in some cases slightly abridged, are printed below in alphabetical order. Hardly any of the opinions received are substantially critical of or opposed to the line adopted in the review. In fact, it is striking to note how many have felt that the doubts and questions expressed there merely recapitulate their own reactions. While it would clearly be inappropriate for those responsible for the planning of the next congress to express their views in print, we are glad to know that the public ventilation of these problems at this stage is regarded as helpful and illuminating, in so far as it enables all

concerned to appreciate the dilemmas with which the organisers of each of these congresses find themselves faced. The response has in itself contributed towards a solution of the problems by showing how seriously and constructively responsible ornithologists view them, and this, it seems, is as much as can be expected of a journal. We do not therefore propose to pursue the matter further ourselves, but any help we can suitably give is at the disposal of the national and international bodies concerned.—E.M.N.]

Sirs,—I consider this a timely drawing of attention to a seriously thought-provoking situation. Many of the questions posed by the reviewer faithfully echo my own thoughts while the Helsinki Congress was on. I also entirely agree with the observation about the steeply varying quality of the papers read at that congress, some of which now, in cold print, are even less impressive.

It is patently unfair to the host country, as well as to the more serious type of participant, who has often travelled long and expensive distances, to get mixed up in the sort of unwieldy ornithological hotch-potch—*tamasha* as we call it in India—that we had in Helsinki. A tendency that is also deplorably on the increase in India is for "scientists" to elbow themselves into being nominated by government or private institutions as delegates to scientific conferences, e.g. to our most important annual Indian Science Congress, and then after the fanfare of the opening session, usually more of a social affair, to spend most of the congress week in sight-seeing and shopping, leaving an attenuated quorum of listeners and a good many empty chairs to greet the papers of eminent scientists who have been specially invited from abroad, often at considerable sacrifice to themselves and great expense to the country! This seems to be a real and growing scandal in many places, and I am glad your reviewer refers to it so feelingly.

By and large I am—as I am sure many will be—in agreement with all the criticisms of the reviewer, but having given some thought to the matter I am afraid I cannot think of any constructive or workable remedy to suggest at the moment. Undoubtedly some form of strict quality and quantity control is essential, both in regard to the participants and the papers given, in order to uphold and safeguard the dignity and scientific status of these international ornithological congresses. Yet I feel that the attendance should not be so severely pruned that seriously inclined "amateurs"—the borderline cases—are deprived of the opportunity of listening to, and occasionally even participating in, discussions on various topics of scientific ornithology, and of drawing inspiration from eminent workers. Our endeavour should be to strike the golden mean; how this can be achieved must be carefully considered.

One thing I strongly feel to be highly desirable, and which I have discussed with several of my co-members of the International Ornithological Committee, is that more time should be allowed for discussion after each paper than is available under the present arrangement. I believe that within the time allotted to each author, it would be far more profitable for everybody if instead of reading out his paper in full—sometimes indifferently or indistinctly, and often stuffed to boredom with statistics and minutiae—the author restricted himself merely to giving a terse summary of it, highlighting the points he particularly wishes to make. In the ensuing discussion he could then elaborate them if necessary by reading out relevant passages from his paper. I feel that in this way not only could time be saved but even the non-specialist in a specialised topic would get the benefit of acquainting himself with the background and keeping himself abreast of many aspects of the science which lie outside his special branch of work or interest. The paper would later be published in the *Proceedings* anyhow, and it would then perhaps be much more meaningful for one who had followed the discussion. SALIM ALI

Sirs,—Mr. Nicholson's view that the ornithological congresses must be organised in another way than hitherto is certainly sound and, I think, emphasises a necessity. In my opinion symposia on limited subjects and with selected speakers is the only way for the future. In addition, there should always be some "open topic" for papers that cannot be placed within the given subjects, but in this case also a selection is necessary.

In discussions following the lectures of the invited speakers all members of the congress would, of course, have the right to take part. In connection with any such open discussion, however, it is important that the chairman is the right man in relation to the topic dealt with, so that he can manage the discussion at a high level. The power of the chairman to interrupt, or even to exclude speakers deviating too far from the main subject or apparently being unqualified to give comments, must be recognised and respected by all members in the interest of the congress. It is certainly a delicate task for a chairman to handle meetings crowded with people with a very varying ornithological approach. If such a hard policy were used throughout a couple of congresses, then the result would probably be a kind of natural selection in favour of serious congress participants and an elimination of "speaking passengers".

The most valuable thing about ornithological congresses seems to me to be the personal contacts in small, privately organised discussions behind the scenes. There were several successful minor meetings of this kind on very limited subjects both in Helsinki and in London in

1958. The yield of such gatherings is often greater than that of the official sessions, a fact that indicates a new deal for future congresses.

The problem of excursions is difficult, but there is always the possibility of cutting down the number of participants for reasons of organisation and even of conservation (habitats, nests and nestlings are often destroyed when an invasion of congress ornithologists has passed) or of dividing people into different groups, for example pure ornithologists and "hangers on".

The best season for an ornithological congress connected with field excursions in the northern part of the northern hemisphere seems to be during the birds' breeding period, when the avifauna is the richest and the habitats are the most representative.

Much more could be said about the questions raised by Mr. Nicholson. These problems deserve thorough thoughts and planning. Why not take them up for discussion at an open meeting in Ithaca in 1962?

KAI CURRY-LINDAHL

Sirs,—I entirely agree with the criticism of ornithological congresses, though, as one of the older ornithologists who did not make the trip to Helsinki, I have no personal comments to make on that meeting. The trouble with recent congresses has been that they have been attended by too many people, many of whom have been mere amateurs. They have also tended to last too long. A good remedy would be drastic curtailment of excursions and severe organisation of the meetings. The International Council for Bird Preservation has, since 1934, held meetings before every congress, in order to replace a previous cumbersome section on bird protection, but these have developed into complete congresses of their own and it is now proposed not to hold them then. This would make the session lighter for many of us. I am, however, in favour of congresses: they have the tremendous advantage of enabling ornithologists from different countries to meet, and this is their main purpose. But steps should be taken to reserve space and time for serious workers only.

J. DELACOUR

Sirs,—The review by E. M. Nicholson on the subject of international ornithological congresses appears to me to be very important and significant. That is why I am now taking the liberty of putting forward several quite personal opinions. It will probably be necessary to try to revise the normal programme of our congresses in order to give these meetings a more precise purpose. The scientific level of the papers read nowadays is evidently very different from that at the first congresses in Vienna and Budapest. Then "applied" ornithology and certain aspects of migration provided the main theme. Later

congresses at, for example, Oxford and Uppsala contributed much to the development of ornithology as biological knowledge. These are surely two very different lines. And it cannot be denied that a great number of the papers presented to congresses are of only local or passing interest.

It seems that ornithology has now reached a high scientific standard and is contributing much to the solution of zoological problems, and even of ones of general biology. Such aspects should particularly occupy the attention of international reunions. That is why I am taking the liberty of making some suggestions about the programme for the XIII Congress. We should perhaps envisage its organisation in the form of several symposia which bear upon general problems of the ornithology of our time. The subjects to be presented *and discussed* (it was, above all, the lack of discussion which, to my mind, lessened the scientific value of several past congresses) could perhaps be formulated in the following manner:

(a) Systematics. Theories of clinal variations and their possible application to formal systematics (the definition and naming of subspecies); allopatry and sympatry; broad groupings (orders) and their general interpretation from such angles as paleontology and evolution.

(b) Ecology (in the broad sense of the word). Problems of the seasonal cycle in the lives of birds, seasonal distribution, reproduction, moulting, changes in metabolism; correlation of internal and external factors; evolutionary aspects.

(c) Physiology. The rôle of the central nervous system on the one hand and of sight and hearing (connected with the problem of orientation) on the other; behaviour and its relation to reflexology.

(d) Faunistic studies. One would very much like to have some general information on this question, but it would be necessary to ask those concerned to analyse its scientific aspects.

(e) Bird life and the activities of man. This is a main problem of ornithogeography, as well as of biogeography in general; one could add to this symposium the study of quaternary faunas.

(f) As a new question, the rôle of birds in relation to medicine and veterinary surgery (compare, for example, the works of the World Health Organisation at Geneva).

The above are for the scientific programme. But what is one going to do with the lesser communications of the amateurs, which are sometimes interesting? Reject them *en bloc*? I do not think so, but what is the solution?

G. P. DEMENTIEV

Sirs,—The problem of an international ornithological congress is somewhat different from that of a congress in an "indoor" science

such as chemistry or psychology. Perhaps the nearest parallel would be an archaeological congress held in an area full of important remains. But at least ruins do not fly away if disturbed! It seems to me that one possibility would be to have an international ornithological society with some kind of qualification, whose members would have priority on all expeditions and would be the sole participants in some. Non-members could attend the congresses as associates but their papers would be liable to suppression, and would rarely be allotted much time. I may add that I attended the Basel congress as such an outsider. My paper on the statistical treatment of bird-ringing data interested about five people—one very much—but was quite unsuited for reading in full.

In my opinion the main value of such congresses is that they allow of personal discussions between people with common interests. These need not take place at the formal meetings, after the papers have been read. Many congresses would be definitely improved if a special office were opened entirely to facilitate such meetings of individuals. Sometimes, for example, I wished to ask a question of detail about a film which gave no opportunity for immediate questions.

I think it most important that congresses should have the minimum of non-scientific entertainments. A certain austerity would help to frighten away persons who are not really interested (including wives). On the other hand, there should be very ample opportunities for individual discussions.

J. B. S. HALDANE

Sirs,—Mr. Nicholson's review poses some important questions. A joint committee of the British Ornithologists' Union and the British Trust for Ornithology has already been discussing the difficulty of ensuring that ornithological effort in this country is adequately represented at international congresses, but an appeal to various foundations towards the very high travelling costs has so far met with no success. While it is probable that the senior professional ornithologists will usually get grants from their employers or from other scientific sources, this is not so likely for the younger professionals or for any of the competent amateurs. If it is agreed that one of the primary functions of an international ornithological congress is the exchange of ideas between workers in different countries and the consequent stimulation to further, and better, research, then it is important that the proceedings should not be confined to those who already have an established reputation. This inevitably means the creation of a fund for making grants towards travelling costs, and any suggestions which your readers may have for making this successful would be welcomed by the joint committee already mentioned.

Even if money were available to assist selected people to attend the

congresses, there remains the problem of ensuring that attendance will be worth their while as a serious contribution to the development of their own ornithological studies. I believe it is the intention of the organisers that one part of the indoor proceedings should consist of symposia on selected subjects with invited speakers, but that the second part should be set aside for unsolicited papers. Since contributions for the first part will be automatically screened the hazard of unimportant, or badly presented, papers should be avoided there. In the second part, however, I feel that the principle should be established now that anyone offering a paper should be obliged to send it in the first place to a national body in his own country, and that the organisers should have the explicit right to make a selection from papers which have already passed scrutiny in their country of origin.

The problem of excursions crowded by visitors who have no interest in the real proceedings should be dealt with by having two main categories of excursions, one on an invitation basis only, arranged by the organisers in consultation with representatives of national societies, and the other open to all visitors to the congress. This may seem too drastic, but opportunities for meetings of this kind are few and their success in the future will depend on the programme appearing worth while to the best students.

I would deplore, however, any restriction of the right to attend a congress, and since one of the functions of any gathering of this nature must be to foster international co-operation I feel strongly that some open sessions should still be held outside the set programme in which the emphasis would be primarily social. R. C. HOMES

Sirs,—I would like to say how whole-heartedly I approve of everything that Mr. Nicholson said with regard to international ornithological congresses. One of the greatest difficulties is the size of these congresses. Up to 1939, when they were of manageable size, hardly any of the problems raised by Mr. Nicholson mattered greatly. Now they do, and part of the trouble, as he points out, is that many persons are attending primarily to get a "guided bird-watching trip abroad". Any form of discrimination among those applying to come seems highly undesirable in itself and might well operate unfairly, for instance cutting out comparatively unknown persons who might be likely to get great profit from attending and be active in ornithology in the future. With great reluctance, therefore, I have come to the conclusion that, for a European meeting, the only way to reduce the numbers effectively is to eliminate field trips. I suggest this with great reluctance because, in a conference of manageable size, field trips are one of the most enjoyable features. Not only does one see new and delightful birds, but one is thrown informally into the

company of others whom one did not know, in circumstances where it is much easier to make contact than in the formal sessions. However, if the price of having good excursions is for the congress to be swamped by persons who are not interested in its scientific side, so that those with a serious interest are unable to meet easily anyway, then I feel it should be the excursions that are abolished, and this would, I think, eliminate at one stroke those with no serious interest in the congress itself. For the same reason, I think it would also be desirable to eliminate those bird films, however well photographed, in which the primary interest is not biological. The B.O.U. Centenary Conference at Cambridge, which all agree was admirable, provided a highly satisfactory meeting without any field excursions, so that the latter need not be regarded as an essential part of an ornithological congress.

While I feel that there should be no selection of those attending a congress, I feel that there is a strong case for the selection of papers delivered. The programmes should, in my view, be less crowded and there should be more times free for informal discussion. There should also, in my view, be an even more drastic restriction of the papers published in full. Many of those in recent volumes of the *Proceedings* are either a repetition of what the author has published elsewhere in greater detail or, though at the time describing new work, have been superseded by a fuller publication between the time at which the paper was read at the congress and the publication of the *Proceedings*. Publication could be speeded up very considerably by the simple rule adopted by the organisers of the B.O.U. Centenary Conference at Cambridge—that no paper would be published in the *Proceedings* unless it was in the editor's hands within a month of the conclusion of the congress. Once authors realise that this threat will be carried out, it is remarkable how rapidly they submit their material!

Mr. Nicholson covered many other points in his extremely able and cogent review and I would only add that I agree with all of them.

DAVID LACK

Sirs,—I welcome warmly Mr. Nicholson's expression of unease in his review of the Helsinki Congress and its *Proceedings*. The subject has many difficulties and I want to comment on only a few of them.

(1) Consideration might be given to holding international ornithological congresses only as sections of zoological congresses. This course would cut out duplication of attendance; it would, apart from any other machinery, reduce the contributions of local or trivial interest; and it would not attract potential participants who were merely in search of a bird-watching holiday.

(2) Numbers attending ornithological congresses would be reduced

and the average quality of participation improved if the congresses were held in the local "off-season".

(3) The host country should not be subjected to the burden of publishing the *Proceedings* on the present scale. In abstracting for *The Ibis*, which is of necessity highly selective, it is particularly obvious how large a proportion of the papers in the *Proceedings* are too trivial for "notice", or re-hashes of work already published elsewhere, or preliminary statements which by the time the *Proceedings* appear have been (or almost immediately will be) superseded by fuller accounts elsewhere. Congress *Proceedings* might usefully be published by title and/or brief summary, leaving the full contributions to face the selection of the usual journals.

R. E. MOREAU

Sirs,—I agree with Mr. Nicholson that if future international ornithological congresses are to succeed, it is high time constructive proposals for reform should be put forward. The present problems can be summarized under six broad headings: finance, numbers and types of participants, standards of contributions, scope of the programme, excursions, and competition with other international meetings.

The financial problem has already reached such proportions that the selection of suitable host countries has become acutely difficult. The number of countries willing and able to support the cost and to provide the essential facilities, and within reasonable distance of the majority of potential participants, is very limited. I suggest consideration of the possibility of national levies towards a central fund under the administration of the Permanent Executive Committee, which would at least reduce the financial burden and increase the opportunities for enlarging the choice of suitable locations. The cost of producing the *Proceedings* might well be considered an appropriate subject for a continuing grant from e.g. UNESCO, rather than expecting the host country alone to subsidise the publication.

So long as the congresses continue in their present rather generalised form, combining science with entertainment, the sheer weight of numbers attending will inevitably increase and the proportion of what might be termed the tourist element will also continue to grow. There seem to be only two alternatives: to discontinue the congress excursions, which would mean a sad loss to many serious ornithologists whose only opportunity for seeing foreign birds may be at these meetings; or to hold the congresses in the winter, when the tourist element would be much less likely to be attracted. A possible palliative (though no solution) might be to divide the excursions more clearly into two classes: one for serious ornithologists willing to rough it, under the guidance of local field-men; the other for the sightseeing group, which would be guided by members of a social committee.

The latter group could and should be discouraged from joining the former. One might also consider limiting the registration of members to those who belong to their national ornithological societies as some indication of serious interest. It would not be unfair in the circumstances to ask registered members to pay higher rates for the attendance of their wives if, as is often the case, the latter were not ornithologists.

The standard of contributions at congresses obviously calls for a much stricter screening process. It is extremely difficult for the host country organisers to judge from a brief summary of a proposed paper whether the author is qualified in his subject. I suggest that a preliminary screening by a panel of local experts in each country should be carried out, thus leaving only the final selection to the congress programme organisers. It would then become the responsibility of the national panel to ensure both the standard of papers and films and the effective representation of its members at the congress. If the representation were considered insufficient the panel should seek ways and means of facilitating the attendance of those who, for financial or other reasons, might otherwise be unable to take part.

The programme for an international congress must cater for all interests, but there is no reason why the organisers should not be encouraged to select certain topics for symposium treatment, to which leading specialists from each country could then be invited to contribute. The secret of success is to select chairmen who will actively organise a stimulating level of free discussion of the papers. This was shown to work excellently at the B.O.U. Centenary Conference. But it did not happen by chance—it was planned. At many past congresses time-keeping has been bad and the opportunity for discussion therefore severely limited or completely absent. Time-keeping should be strict and we should try to overcome the lethargic atmosphere in which so many admirable papers are received. If by more severe scrutiny of contributions the total number of papers can be reduced, we might also minimise the occasions on which two leading experts speak on important topics at the same time in different lecture halls.

I applaud Mr. Nicholson's suggestion that some form of co-ordination should be devised to reduce the increasing competition between international meetings of various bodies. An acute problem of this kind exists even at a national level. Joint planning by the International Ornithological Committee, the Permanent Executive Committee of the International Congress and similar bodies should at least be attempted.

It is unlikely that so complex a list of questions as Mr. Nicholson poses can be satisfactorily answered by any one individual. I suggest that when the forum of *British Birds* has attracted its full quota of response, the letters should form the basis for a meeting of those best

qualified to represent the various interests of British ornithology. The pros and cons could then be objectively evaluated. All concerned —professionals and amateurs, not forgetting bird-watchers and excursionists—should express their views. Finally, let me suggest that any who are tempted to feel that the neophyte bird-watcher has no place at an international congress should remember the time when they too were beginners and eager to learn from those with greater knowledge. We shall not be building for the future if, in our anxiety to bring international ornithological congresses into more practical proportions, we exclude the keen young amateur who is not yet ready to make his contribution.

GUY MOUNTFORT

Sirs,—I have read with great interest the review by E.M.N. of the Helsinki *Proceedings* and his subsequent critique of the ornithological congresses. I heartily concur with him that it is an error not to group together papers which bear on the same general topic in any volume of *Proceedings* as well as adding to them the gist of discussions where pertinent. As I recall the discussions at Helsinki, however, they were usually far too brief or lacking altogether, or if long, far too long, so that the effect would be decidedly lopsided if in such a case they were not to be edited.

The points raised about the meetings themselves are entirely valid. It appears that such meetings are tending to become weighted down with hosts of birders eager to add to their life lists, and that in the midst of such a throng many serious ornithologists and other rare birds will slip away unobtrusively in the underbrush. And yet how to marry the two? Obviously, serious and keen ornithologists of every description, whether amateurs or professional, should be encouraged to come. In addition, ornithology with its museum, laboratory, university and foundation connotations cannot overlook some popular topics and popular support, especially in countries such as the U.S.A., Canada and the U.K. where private philanthropic support is sought. Ornithologists cannot be too exclusive for a variety of reasons. Younger, untried men and women must be encouraged.

The easiest solution would seem to be to cluster the subjects and interests in such a way that sessions could overlap. Bird trips or popular lectures for birders could go on at the same time perhaps as panel discussions on physiology, morphology or evolution which might be the primary concern of the specialist. Certain selected topics appealing to a wider audience could lead off open meetings. One difficulty with such an arrangement is that, as in the case of the International Zoological Congress in London, there are times when one wishes to be in two or more places at once. Very considerable discrimination is required to serve a menu for those with catholic

tastes. But it can be achieved with only minor hardship all round, especially if the eventual *Proceedings* are edited and arranged in the same manner.

Speaking for the International Council for Bird Preservation, I should say that we are most flexible in our arrangements. We are willing to have, and on most occasions do have, entirely separate meetings from the ornithological congresses. I should personally be inclined to favour increased separation as the total attendance at the congresses increases. Ornithologists who are interested will find their way to our meetings which, being small, are far more cohesive as to people in attendance and limited in subject matter.

The next congress in the United States is likely to accentuate the attendance problem brought out by E.M.N. Presumably relatively few foreign ornithologists will come, owing to distance and funds. Certain representative persons may well receive subventions to attend. A large block of ornithologists will stay away because of the dollar position. Thus there is likely to be a one-sided attendance of U.S. and Canadian ornithologists with perhaps a very few brightly plumaged representatives from Latin America or Japan. Lay people will probably not be encouraged to come, with the result that the meeting in its composition will bear a strong resemblance to one of the annual meetings of the American Ornithologists' Union. If this happens, then the U.S.A. meeting will be irrelevant as far as charting any broad or developing pattern for the future of congresses is concerned. Those who like a meeting of kindred souls will be pleased if they happen to be there. The others will merely be able to read about it a year or two later. S. DILLON RIPLEY (*President, I.C.B.P.*)

Sirs,—I have read E. M. Nicholson's special review with great interest. It appears to me to have raised a number of important points and I should be glad of the opportunity to comment on a few of them and to suggest some possible ways in which congresses of the future might be improved.

First let me say that I feel that the more intangible benefits of these congresses are, in fact, the greatest ones and that they are the ones that follow from the opportunity for informal meeting and discussion between ornithologists of all types and from all countries. I think it would be quite disastrous if anything were done which harmed or destroyed this aspect of the meetings. Moreover, I should be very strongly against any action which hindered or restricted the attendance of amateurs, however young or inexperienced they may be. I am sure that many ardent amateurs, and in particular the younger members in both the amateur and professional classes, get enormous stimulation and profit from meeting and hearing the world leaders in their field of

particular interest and from mutual discussion with others of like mind at all levels. But anxious though I am to preserve these features of the congress, I do agree that some modifications in the type of publication, in the method of payment for publication and in the organisation of excursions are overdue. With these problems in mind, I would like to make the following suggestions:

(1) The size of the volume to be produced at each congress should be fixed beforehand.

(2) For each congress some particular (though very general) fields of ornithological science should be chosen for emphasis and to these fields the main energies of the congress, amounting to say 80% of the meeting time, should be devoted.

(3) The main speakers for dealing with these subjects should be invited.

(4) After the main speakers have been invited, the congress committee should accept suitable papers dealing with or relevant to these main fields from among those offered, to make up the required 80%.

(5) The remaining 20% of congress time should be filled with offered papers on fields other than those chosen for the main effort. If offered papers outside the special fields chosen are numerous, careful selection should be employed. A closing date for such offers would have to be fixed.

(6) Publication should be financed as at present for all the material in the 80% class and perhaps for some report of the main discussions. To secure adequate report of discussions involves tape-recording and heavy work in editing and translation, but if carried out carefully and critically it can be very well worth while.

(7) The rest of the space in the volume should be filled by selecting the best of the remaining papers.

(8) Authors of these supplementary papers should pay the costs of printing if they wish their papers to be published in full. Otherwise brief summaries only should be published.

(9) The number of places for each field excursion should be limited so that the success and pleasure of the trips are not endangered.

(10) The congress should be held at the season best calculated to secure the attendance of both amateurs and professionals and not necessarily at the time best suited for excursions.

It is my impression that while some of these suggestions involve much work for the organising committee and also the making of some invidious choices, none of them is impracticable and their adoption would help to bring the organisation of the congress into line with modern requirements and developments. W. H. THORPE

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1. Papers should be typewritten with double spacing, and on one side of the sheet only. Shorter contributions, if not typed, must be clearly written and with similar spacing. Failure to help in this way may result in delays to publication.

2. Notes should be worded as concisely as possible, and drawn up in the form in which they will be printed, with signature in block capitals and the writer's address clearly written on the same sheet. If more than one note is submitted, each should be on a separate sheet, with signature and address repeated. In the case of rarity records, any supporting description which is too detailed for publication should be attached separately.

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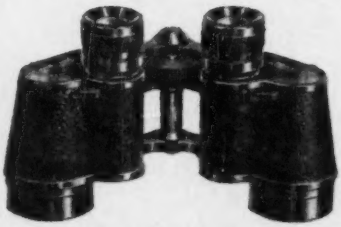

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